

OYSTER HARBOR MARINE FIRE

Section I (Summary)

1.00 OVERVIEW

- 1.1. During the evening hours of December 10, 2003, a multiple alarm fire occurred at Crosby's Yacht Yard, 41 Cockachoiset Lane, Osterville, MA 02655. This fire caused extensive damage to buildings, boats and other property.
- 1.1.1. Oyster Harbor Marina, 122 Bridge Street, Osterville, MA 02655 is located adjacent to Crosby's Yacht Yard. Extension of fire from Cosby's resulted in extensive damage to buildings, boats and other property at Oyster Harbor Marine.
- 1.2. The Centerville-Osterville-Marstons Mills Fire Department (C.O.M.M.), Office of the State Fire Marshal (SFMO), Bureau of Alcohol Tobacco and Firearms (A TF), and Barnstable Police Department (BPD), conducted a fire cause and origin investigation. Oyster Harbor Marina is within the C.O.M.M. Fire District.
- 1.2.1. Osterville is a village within the Town of Barnstable. Osterville is located on the south side of the Town. C.O.M.M. Fire Department is not officially a part of Barnstable town government. The town of Barnstable has five separate fire departments. Each department is part of an independent Fire District created through special acts of the state legislature between 1895 and 1949. These Fire Districts have separate authority. Elected boards govern the Districts.
- 1.3. The C.O.M.M. Fire Department and the SFMO investigation reported the origin of the fire to be within Crosby's Yacht Yard, Shed Number 3, 41 Cockachoiset Lane and the cause of the fire to be unknown.

2.00 SCOPE OF ASSIGNMENT

- 2.1. On February 14, 2005, Ms Donna Moniz-Levesque, General Casualty Adjuster, for Hanover Insurance Company, Claim 03-410096, requested I provide a:

2.1.1. Objective analysis of Oyster Harbor Marina Compliance with Fire Prevention Regulations.

- 2.1.1.1. Opinion as to Oyster Harbors Marina compliance with state and local fire suppression codes, on December 10, 2003.
- 2.1.1.2. Opinion as to potential Hazards present at Oyster Harbors Marina, on December 10, 2003, which may have an undesirable outcome from fire such as destruction of property.
- 2.2.1 Opinion as to Oyster Harbor Marina's diligence to reduce Risk Associated with Potential Hazards (Reasonable Care), present in marina operations.
- 2.2.2 Opinion as to the Extension of Fire From Crosby Boat Yard to Oyster Harbor Marine.

3.00 SUMMARY OF CONCLUSIONS

3.1. Compliance with Fire Prevention Regulations

- 3.1.1. Between 1995 and December 10, 2003, Oyster Harbors Marina maintained compliance with Massachusetts Fire Laws, Regulations and Standards pertaining to a Marina Operations.
- 3.1.2. Between 1995 and December 10, 2003, Oyster Harbors Marina maintained compliance with the State Building Code as interpreted by the town Building Department as to Building Classification and Zoning Set Backs.
- 3.1.3. I base my opinion on interviews, observations, review of records and personal knowledge.

3.2. Fire Risk Associated with Potential Hazards (Reasonable Care)

- 3.2.1. I evaluated historical records, conducted interviews and made onsite observations identifying hazards, compliance with laws and regulations, fire exposures to and from adjacent structures and properties, available emergency water supply, fire control equipment, Fire Department response, probable effectiveness of

the initial response and subsequent suppression operations.

3.2.2. It is my opinion Oyster Harbors Marine acted with due diligence to identifying potential hazards, coordinate fire department inspections and providing reasonable care to reduce risk.

3.2.3. I base my opinion upon my experience applied to information contained in fire reports, observations, interviews, personal knowledge and experience applying Massachusetts Fire Prevention Laws, Regulations and Standards to marina fire prevention and safety practices.

3.3. Extension of Fire from Crosby Boat Yard to Oyster Harbor Marine.

3.3.1. I reviewed Oyster Harbor Marina and Crosby Boat Yard Building and Structure site plans, locations in relation to each other, construction classification, and lot set backs with the Town Building Officials.

3.3.2. I reviewed Oyster Harbor Marina and Crosby Boat Yard Fire Department records and reports of inspections, alarms, response and fire ground reports of C.O.M.M. Fire and Emergency Services.

3.3.3. The initial alarm of fire reported a large Crosby Yacht Yard shed right next to Oyster Harbors Marine "fully engulfed".

3.3.4. At the time of alarm and upon the arrival of the fire department this fire was in an advanced stage within Crosby Boat Yard Shed 3 (a high hazard environment), being fueled by materials with low ignition temperatures.

3.3.5. In my opinion, this fire made substantial headway prior to sounding the first alarm. Weather conditions combined with conduction, convection and radiation of heat from the high temperatures of the fire itself accelerated extension. This sequence allowed a rapidly advancing fire opportunity to extend from Crosby's to Oyster Harbors Marina the adjacent property and hampered initial fire suppression efforts.

- 3.3.6. I base my opinion on observations, training, experience, and personal knowledge of fire applied to witness observations, statements and photographs, contained in fire reports.

Section II (Detail)

4.0 COMPLIANCE WITH FIRE PREVENTION REGULATIONS

Fire Regulations establish the minimum acceptable standard of risk necessary to protect the majority of a community from the minority who may overlook risk from the hazard of fire. Fire Prevention Standards offer guidance developed over time through consensus of citizens, regulators and industry experts. These Standards assist regulators, local authorities, and marina operators to identify hazards and make knowledgeable risk judgements and evaluate the capabilities of their public safety agencies to achieve a desired level of safety from fire.

I reviewed available facility inspection reports licenses, registrations, permits, certifications and inspections conducted by the office of the State Fire Marshal and Marine Fueling Permit Inspections by the Centerville - Osterville - Marsdon Mills (COMM) Fire Department prior to and up to the December 2003. This facility possessed all required licenses, registrations, and permits. Inspection reports did not identify fire safety violations which were not addressed.

I conducted interviews and reviewed employee training.

Between 1995 and December 10, 2003, the Centerville - Osterville - Marsdon Mills (COMM) Fire Department conducted annual fire prevention inspections at Oyster Harbor Marina. No hazards or fire prevention infractions were identified.

On December 24, 2002, the COMM Fire Department inspected the marina and certified compliance to Massachusetts Fire Prevention Regulations pursuant to application for a Marine Fueling Permit. Based on this application and site inspection, the State Fire Marshal issued Marina Fueling Permit 97-1001-25 valid through December 31, 2003. Code of Massachusetts Regulation 527 CMR requires this permit at marinas that

dispense fuel to watercraft. A fire prevention inspection is required before the permit may be issued. This inspection is important to evaluating fire prevention and safety conditions in as much as it requires the local fire department to perform an inspection of "all facilities used in connection,,1 with the fueling of watercraft. This is a fire prevention inspection of the entire facility.

Interviewed - Martin MacNeely. CFI. Fire Prevention Officer, Centerville-Osterville. Marsden Mills Fire DeDartment. - On May 10, 2005 I interviewed MacNeely. I was informed that according to the records of the fire department Oyster Harbors Marina had been inspected on several occasions prior to the fire. No record of fire prevention violations were located. MacNeely further advised that Crosby Yacht Yard had also been inspected.

Copies of Fire Department Records -Fire Prevention Inspections are attached to this report.

Copies of Licenses, Registrations and Permits are attached to this report.

Interviewed: Mr. Peter Maryott. Vice President - General Manager. Oyster Harbors Marina. - On divers dates between March 15, 2005 and April 10, 2005 I interviewed Mr. Maryott who provided me with the identification of persons who might provide with operational information and records. Mr. Maryott provided me with an accounting of property affected by the fire.

Interviewed: Ms. Kathleen Kenneally. Office Manager. Oyster Harbors Marina. - On divers dates between March 15, 2005 and April 10, 2005 I interviewed Ms. Kenneally who provided me sources to obtain records.

List of Property Affected by the Fire attached to this report.

Interviewed: Mr. John W. Furrh. John W. Furrh Associated. Safety Loss Prevention Consultant. - On March 16, 2005, I interviewed Mr. Furrh who informed me employees of Oyster Harbor Marine had received training in accordance with regulations between 1999 and 2004, pertaining to Hazard Communication, Material Safety Data Sheets, Use of Safety Devices, Personal Protective Equipment, Fire Extinguisher, Fire Prevention, HAZWOPER (Spill Training), RCRA, D.O.T., and Forklift. Written Policy and Procedure was on site for Hazard Communication, Material Safety Data Sheets, Fire Prevention, Hot Works, Contingency Plan and Guide Books.

Statement of Employee Training attached to this report.

Conclusion - Based on my inspection, interviews and previous inspection records, it is my opinion this facility maintained compliance with fire and safety requirements of

Massachusetts Laws, Regulations, and National Fire Safety Standards during the period.

Exception: Oyster Harbor Marine was observed to operate a multi tier (3 level) dry rack boat storage of approximately 15 boats ranging in size from 10 feet to 20 feet with an average flammable liquid capacity of 10 gallons in removable fuel tanks. The tanks were removed (as stated by Peter Maryott) prior to being placed in the rack. The yard provided storage for at least 10 boats, as reported, damaged by the fire. The dry rack boat storage is directly adjacent to Crosby Shed 3. The approximate aggregate flammable / combustible fuel storage capacity of stored boats was 4300 gallons of fuel. Under state fire regulation an empty tank is considered as a full tank in determining aggregate fuel storage capacity. The fuel capacity stored at Oyster Harbor Marine exceeds the aboveground flammable and combustible liquid storage capacity limits established by 527 CMR 14.03 for a Permit and thereby requires the land to be Licensed in accordance with chapter 148 § 13 for aboveground storage of flammables and combustibles. Oyster Harbors was restricted, by Permit, in above ground flammable / combustible liquid storage to 165 gallons Class I in 55 gallon drums, 500 gallons Class II in 55 gallon drums and 500 gallons of Class III in an approved tank.

Opinion:

- a.) At the time of my July and August 2005 inspection Oyster Harbor Marine was in compliance with Massachusetts Codes and Regulations. (Exception described above.)
- b.) Between 1995 and 2003, the Marina maintained compliance with Massachusetts Fire Prevention Laws, Regulations and Standards pertaining to a Marina Operations. I base my opinion on inspection, observations, personal knowledge, interviews, review of historical inspection records and reports.

5.0 RISK ASSOCIATED WITH POTENTIAL HAZARDS (Reasonable Care)

An adequate degree of Marina fire safety is subject to widely varying circumstances specific to each facility. Because of the large number of variables, each cannot be specifically addressed. Furthermore, while it is possible that a Marina could be made

entirely self-sufficient in fire risk protection, it is seldom necessary or cost efficient to do so. Massachusetts Laws and Fire Prevention Regulation establish the minimum acceptable level of safety from the hazards of fire demanded by the state. This means that judgment by marina operators must be brought to bear in cooperation with their local public safety agencies. Inspection and emergency response capabilities of local public safety agencies are primary to determining application and effectiveness of a facilities compliance with regulations and industry standards. In spite of efforts to eliminate hazards within a Marina by regulation, prudent management must consider that accidents may occur and take reasonable steps to control them. The safety of employees and customers within the facility, and its neighbors are of paramount concern. Although marina employees may take action to reduce the risk of fire in public areas, they are restricted from seeking out fire hazards onboard individual boats.

Evaluation: I conducted interviews, made observations and reviewed records to evaluate Oyster Harbor Marine risk and hazards present prior to December 10, 2003.

The Centerville - Osterville - Marsdon Mills (COMM) Fire District located within the Town of Barnstable does not have a separate town fire code. Barnstable accepts and employs the Massachusetts Fire Code as the Town Fire Code. Massachusetts General Law (MGL) chapter 148 and Board of Fire Prevention Regulation Code of Massachusetts Regulation (CMR) 527 codify acceptable level of risk from the hazards of fire. Osterville adheres to state Fire Prevention Laws and Regulations. State regulations grant wide discretionary authority to a local fire chief to identify and further restrict state requirements to meet needs specific to his local jurisdiction.

Interviewed: John M. Farrington, Chief, Centerville-Osterville Marsden Mills Fire Department. On May 10, 2005 I interviewed Chief Farrington who informed me the primary response to a fire at Oyster Harbors or Crosby would come from C.O.M.M. Station 2 which is located on Main Street in Osterville. Chief Farrington provided a "Run Card" which dictates the procedure and equipment allotted to a response based on the incident. The chief also provided records of fire department responses on the date of the fire.

Run Card attached to this report.

Interviewed - Martin MacNeely, CFI, Fire Prevention Officer, Centerville-Osterville, Marsden Mills Fire Department. - On May 10, 2005 I interviewed MacNeely. I was provided with copies of Licenses, Permits and Registrations granted to Oyster Harbor Marine.

Copies of Licenses, Registrations and Permits are attached to this report.

Interviewed: Ms Kim Sullivan, Perry and Sullivan Fire Protection. - On March 16, 2005, I interviewed Ms. Sullivan who informed me during June and November 2003, Perry and Sullivan performed a fire systems and extinguisher inspection / service at Oyster Harbors.

Itemized Service Invoice attached to this report.

Interviewed: Ms Kathy Silvia, Fair Insurance Agency. - On March 18, 2005, I interviewed Ms. Silvia who informed me Doug Drew a Loss Control Consultant had conducted a fire prevention and safety survey of Oyster Harbors on November 16, 1999.

Loss Control Survey of Doug Drew attached to this report.

Interviewed: Mr. Craig Crocker, Superintendent, Centerville-Osterville-Marsden Mills Water District. On March 16, 2005 I interviewed Mr. Crocker who informed me of the location of Fire Hydrants in the area of the fire. Crocker also informed me that on November 18, 2004, he conducted a water main flow test on the system adjacent to Crosby Yacht Yard. Crocker stated the water flow and pressure was the same at this time as it had been on the night of the fire. He also stated that no unusual water pressure issues impacted the fire fighting operation.

Water Flow Test results and Hydrant Locations attached to this report.

Interviewed: Mr. John W. Furrh, John W. Furrh Associated, Safety Loss Prevention Consultant - On March 16, 2005, I interviewed Mr. Furrh who informed me employees of Oyster Harbor Marine had received training in accordance with regulations between 1999 and 2004, pertaining to Hazard Communication, Material Safety Data Sheets, Use of Safety Devices, Personal Protective Equipment, Fire Extinguisher, Fire Prevention, HAZWOPER (Spill Training), RCRA, D.O.T., and Forklift. Written Policy and Procedure was on site for Hazard Communication, Material Safety Data Sheets, Fire Prevention, Hot Works, Contingency Plan and Guide Books.

Statement of Employee Training is attached to this report.

On May 10, 2005, I went to C.O.M.M. Station 2 to travel the route used by apparatus responding to an alarm at Oyster Harbors Marine. I clocked the distance at 0.98 miles

and at the posted speed limit 3 minutes. In addition I located and clocked the distance from the C.O.M.M. Fire Headquarters station to the fire scene.

Copies of Distance from COMM stations to Incident attached to this report.

Copy of National Fire Protection Standard 1710 (2001) Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments. The 2001 Standard was current at the time of the fire.

On several dates between March 7, 2005 and May 10, 2005, I observed the facility and evaluated operational processes. I reviewed reports, plans and photographs depicting the location of the storage sheds and boat storage racks. The sheds which house quantities of flammable and combustible liquids were situated well less than 10 feet apart. I am of the opinion these sheds are classified by the State Building Code as a Hazardous Occupancy.

Interviewed: Ms. Anaela Whelan. Office Manager. Barnstable Building Department. - March 15, 2005, I interviewed Ms Whelan who provided me with copies of Application and Permits Associated with Oyster Harbors Marine and Crosby's Yacht Yard.

Interviewed: Mr. Jack Fitzgerald. Building Inspector. Barnstable Building Department - March 15, 2005, I interviewed Mr. Fitzgerald who informed me both Crosby Yacht Yard and Oyster Harbor Marine at the time of the fire were located in what is known as a Maritime District. A Maritime District in the Town of Barnstable has no building set back requirements. Mr. Fitzgerald also informed me both Crosby and Oyster Harbors were classified by the Barnstable Building Commissioner Thomas Perry as normal storage. Perry did not consider the storage of boats containing fuel to be a high hazard occupancy.

Copies of Building Data Applications and Permits Attached

Interviewed: Ms. Darcy Karle. Agent. Barnstable Conservation Commission. - March 15, 2005, I interviewed Ms Karle who provided me with copies of Application and Permits Associated with Oyster Harbors Marine and Crosby's Yacht Yard.

Copies of Con- Com Data Applications and Permits Attached.

Conclusion: My evaluation considered historical and current compliance, inspection and identification of fire and safety hazards, and risk from exposure to and from other properties. I reviewed available water supply and emergency control equipment,

operational safety plans, employee training, approximate response time of and probable effectiveness of the local fire department response plan to an alarm. I applied Massachusetts Fire Prevention Laws, Regulations, and applicable National Fire Protection Standards as a benchmark.

Opinion: It is my opinion Oyster Harbors Marine acted with due diligence to identifying potential hazards, coordinate fire department inspections and providing reasonable care to reduce risk.

- a.) Northside Marina complies with Massachusetts Fire Prevention Laws, Regulations and referenced Standards
- b.) Management performs frequent facility reviews, identifies and addresses hazards that pose a risk to persons and property, and has printed fire and safety procedures on site.
- c.) Northside Marina exercised due diligence to eliminate hazard and reduce risk to persons and property.

My opinion is based upon my observations, interviews, personal knowledge and experience applying Massachusetts Fire Prevention Laws, Regulations and recognized Standards detailing marina fire prevention and safety practices.

6.0 EXTENSION OF FIRE FROM CROSBY BOAT YARD TO OYSTER HARBOR MARINE

Fire requires heat, fuel oxygen, proportioning, mixing, and ignition continuity. Fire is a complex process influenced by many factors that affect its growth, spread, and development. The physical shape and state of the fuel supply, the available oxygen, and the transmission of heat all play vital roles in fire development. The radiant heat transfer of flames pyrolyzing a fuel source principally governs extension of fire.²

Pyrolysis generally precedes combustion. Radiation also comes from the luminous soot particles in the flames. Combustibles that tend to produce copious amounts of smoke also tend to support more intense fires.

Fires at marina's or on boats stored at marinas are influenced by the presence of low

ignition temperature materials and conditions including weather and wind, which may rapidly extend fire. Marina fires present a special suppression challenge to land based fire departments. The extension of fire at a marina is best mitigated through immediate alarm to the local fire department and the application of portable fire extinguishers.

Low Ignition Temperature Materials - The ignition temperature of materials ordinarily found near piers and bulkheads or on boats is between 3000 and 10000 F. These include various plastics, flammable vapors from fuels and cleaning chemicals, and paints. Boat coverings are made of polyester plastic blends. Boat hulls are primarily constructed using thermo set plastic. This fiberglass material generally ignites at less than 6000 F, and when ignited produces heavy smoke, toxic vapors and sustained high heat.

Evaluation: I conducted interviews and reviewed records to evaluate the extension of the fire from Crosby's Yacht Yard to Oyster Harbor Marine.

The origin of the fire occurred on the property of Crosby Yacht Yard, 41 Cockachoisett Lane (Shed 3), Oysterville. The fire was first reported via a 911 telephone call by Mr. Edward M. Crosby who made his observation from his residence directly across the Bay

2 Pyrolysis is a decomposition brought about by heat from Crosby Yacht Yard. Crosby reported to the fire department a fully involving a shed at the Crosby Yacht Yard.

The C.O.M.M. Fire Department response to this type of alarm would normally come from Station 2 located at 999 Main Street Oosterville approximately 0.98 mile distance. At the time of the alarm on duty personnel assigned to Station 2 were out of the station working a motor vehicle accident. The secondary response would be assigned to Headquarters Station located at 1875 Falmouth Road, Centerville, approximately 3.52 miles distance. Snow and slush covered the ground. Upon alarm Chief Farrington responded directly to the fire site arriving within minutes of Lt Britton Crosby. Lt Crosby was alerted to the initial alarm while off duty at his residence at 73 Crosby Circle which is in close proximity to the fire site. Lt. Crosby responded on foot with fire gear and a camera. Lt Crosby took photographs prior to the first arriving Engine. Prior to the first Engine arriving at the scene Chief Farrington and Lt Crosby reported a hot fast moving

fire. This fire went to 5 alarms in approximately 18 minutes. The fire was brought under control in approximately in 1 hour and 6 minutes. A cause and origin investigation was conducted by the C.O.M.M. Fire Department, State Fire Marshal and others.

Interviewed Mr. Edward M. "Ned" Crosby. First Reported Fire. - On August 22, 2005 I interviewed Crosby who informed me on December 10, 2003 he arrived at his residence which is directly across the Bay from the site of the fire prior to the 7:30 PM start of the Bruins game. Between the end of the second period (approximately 9:15 PM) and the start of the third period (approximately 9:30 PM) he let his dogs out. While on the porch he hear crackling and observed flames rolling off the top of the front of the large building on the Crosby Boat Yard property. (Shed 3). Crosby called 911 and stated, "Fire at Crosby Yacht Yard, shed closest to Oyster Harbors." The dispatcher asked, "How would you describe the fire?" Crosby replied "fully involved". Crosby states after his call it took the fire department 5 to 10 minutes to arrive. Crosby stated before the fire department arrived the fire went real fast. Crosby stated the fire seemed to be under control about 11 :30 PM. Crosby went to bed.

Crosby further stated Oyster Harbor Marine was not on fire when he called the fire department. The fire was all at the Crosby Yacht Yard.

Interviewed Mr. Britton Crosby. Lt. C.O.M.M. Fire Department. - On September 10, 2005 I interviewed Lt Crosby who informed me that while at home and hearing the alarm on his fire radio he immediately went outside to look in the direction of Crosby's Yacht Yard. Crosby observed a large volume of fire over the top of the building which he thought to be Nauticus Marine. Nauticus is located between Crosby's home and Crosby Yacht Yard Shed 3. Crosby called on his radio and requested a third alarm. Crosby then took his gear and camera and went on foot to the fire scene. As he approached the front side of Crosby Shed 3 he observed a large volume of fire through the roof. The fire was advancing rapidly. Crosby took photographs of the fire prior to the arrival of the first engine company. Within minutes Chief Farrington arrived in his chiefs car. Within 10 minutes Engine 304 arrived manned by FF T Miskiv and Cpt B Eldridge. Chief Farrington established command on fire ground side 1.

Copies of Con_Com Date Applications and Permits Attached
Copies of Assessors Data Lot Plans attached

Crosby Photo's attached.

Interviewed: John M. Farrington. Chief. Cenerville-Osterville Marsden Mills Fire Department. On May 10, 2005 I interviewed Chief Farrington who informed me the primary response to a fire at Oyster Harbors or Crosby would come from C.O.M.M. Station 2 which is located on Main Street in Oysterville. Chief Farrington provided a "Run Card- which dictates the procedure and equipment allotted to a response based on the incident. The chief also provided reports of fire department response incidents on the date of the fire and transcripts of telephone and radio transmission records.

Copies of Fire Department Records attached

REPORTS REVIEWED

The fire department incident report reveals an approximate 30 minute time span between the alarm of fire and arrival of the first engine. Chief Farrington states times in the Incident Report do not appear to be accurate. Further information and records provided by Chief Farrington could not precisely identify response times.

COMM Fire Reports Attached

COMM Transcribed Radio and Telephone Logs attached.

Comparison of Reported Response Times Attached

The Barnstable County Sheriffs Emergency Communications refused to provide records of incident communication times or contents.

Interviewed Mr. Peter Thomas. Director. Barnstable Sheriff Communication Center. - On May 9, 2005 I interviewed Thomas who informed me he would not release any records of call, radio transmission or anything else without a subpoena submitted to Mathew Murphy, Esq., 600 Sheriffs Way, Bourne, MA 02032.

Weather:

Wind and *Weather Reports Attached*

COMM Equipment

Fire Department Equipment Identification and photographs attached

Conclusion: This fire originated at Crosby's Yacht Yard, 41 Cockachoisett Lane, in Shed 3. The cause of the fire has not been determined. Shed 3 contained fiberglass and wood boats, flammable and combustible liquids that provided readily available low ignition temperature fire fuel which when ignited formed self-sustained combustion. This combustion offered heat conduction, convection and radiation that contributed to accelerate the extension of this fire. Buildings housing stored boats and hazardous flammable and combustible materials were situated close together. The fire was well underway when the first alarm of fire was received by the fire department. The fire

department response to the alarm was delayed as the primary responding station was on a call working a motor vehicle accident. Road conditions were wet and slushy from a prior snowfall. Weather conditions offered a gentle breeze.

This was a fast moving fire with readily available low ignition temperature fuel adjacent to similar buildings and storage in very close proximity and influenced by a gentle breeze

Opinion: In my opinion, this fire made substantial headway prior to fire department notification. Weather conditions combined with conduction, convection and radiation of heat from the high temperatures of the fire itself accelerated extension. This sequence allowed a rapidly advancing fire opportunity to extend from Crosby's to Oyster Harbors Marina the adjacent property and hampered initial fire suppression efforts.

- a. The site is located within Barnstable Maritime Zoning District
 1. Buildings constructed close together were not subject to lot line set backs.
 2. Crosby Shed 3 and Oyster Harbors Senior Shed, Boat Storage and rack
Storage were less than 10 feet apart.
- b. Buildings at Oyster Harbor Marine and Crosby's Boat Yard were not classified by the Barnstable Building Department as Hazardous Storage.
 1. No sprinklers or fire alarm devices were operational.
- c. The fire when first reported was rapidly moving in an advanced stage in the presence of materials with low ignition temperatures (high hazard environment)
- d. Heat from the fire itself combined with conduction, convection and radiation accelerated extension
- e. The response to the alarm of fire was delayed
 1. The primary response from Station 2 was working an accident call necessitating a first response from the Headquarters Station.
 2. A delayed alarm to a rapidly advancing fire allowed the fire to gain significant headway rapidly extending, increasing damage to property, and

hampering the ability of the initial fire department response to gain control.

3. Weather and road conditions

Preventing or minimizing the extension of the at Crosby's Yacht Yard to Oyster Harbor Marine was beyond the control of Oyster Harbors management and staff.

I base my opinion on my knowledge, training, personal experience and information contained in fire reports.